CFA, Profunda, and SFA Disease: Is There a Role for Endovascular Reconstruction When a Patient is Not a Surgical Candidate?

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Abstract: Endovascular therapy represents an additional option for treatment that is safe and efficacious in appropriately selected Rutherford class 3-6 patients with common femoral artery (CFA) occlusive disease. Atherectomy in addition to percutaneous transluminal angioplasty (PTA) has a technical success rate of 97% and has a significantly better primary patency than CFA PTA alone. Antirestenotic therapy also shows promise in treatment of these challenging patients. Furthermore, provisional stenting in the CFA may have a significant impact on improving primary patency in the long term, when alternate options fail or are not available. These data would by no means indicate a change in paradigm when managing all patients with symptomatic CFA occlusive disease; surgical common femoral endarterectomy still remains the gold standard. However, in appropriately selected patients, percutaneous CFA interventions are safe and effective.


Key words: common femoral artery, percutaneous intervention
endovascular therapies have been plagued by the need for repeat interventions when compared with surgery. We share our experiences treating this challenging anatomical location percutaneously.

1. PERCUTANEOUS INTRALUMINAL ANGIOPLASTY (PTA)

Approach to CFA lesions is typically obtained by “up and over” contralateral technique or alternate strategies such as brachial, radial, and (occasionally) tibiopedal access.

PTA is the primary intervention indicated for most CFA, SFA, and profunda recanalizations, since it has the advantage of being technically less challenging and reduced hypothetical stimulus for intimal hyperplasia. The benefits of this therapy are evident when compared to stenting in this specific segment, since it preserves collateral vessels, can provide flexibility of reintervention or bypass, and is not associated with fatigue or fracturing. In addition, this therapy can be repeated. Despite these benefits and technical facility, PTA is plagued by a slightly poorer long-term patency such that often, adjunctive therapy may be beneficial. Mehta et al published CFA treatment with PTA alone demonstrating primary patency of 70% at 20-month follow-up, while Nguyen et al reported a 76.4% primary patency rate for standard endarterectomy with patch (SEP) at 18 months.4,5

DCBs are one such adjunct (Figure 1). After appropriate vessel prep in a non-heavily calcified vessel (Fanelli calcium class 3 and 4), antirestenotic/antihyperplastic therapy was shown to prolong patency compared with PTA.6 In the absence of flow-limiting dissections, this therapy is also repeatable and preserves surgical options in the future if needed. Still, the CFA is a location plagued by calcification and fibrotic plaque. In selected patients, debulking or plaque-modifying atherectomy therapy may increase drug penetration.

2. AHERECTOMY

This debulking technology can be applied to the CFA selectively or non-selectively (Figure 2). Atherectomy in addition to PTA has a technical success rate of 97% and has a significantly better primary patency rate than PTA of the CFA alone. In addition, decreasing calcium in this location may improve drug penetration in the vessel wall. However, the CFA is a difficult location due to the superficial femoral and profundal bifurcation. Operators must take caution to avoid embolization or occlusion of these branches. Selective atherectomy (directional and image-guided therapies, such as the Medtronic Hawk-One or Avinger Pantheris, respectively) with distal protection is one such strategy.

3. STENT PLACEMENT

Stent placement in the CFA is generally considered to be heresy in the surgical community. This is for good reason, as traditional stent technology has been limited here by fracture and thrombosis, which can in turn result in additional often worse complications. However, in selected patients, particularly critical limb ischemia (CLI) patients who are high risk for surgery, this option may in fact result in limb salvage and improved quality of life. This location is also frequently accessed for coronary and cerebrovascular angiography, so stenting in this location may decrease access options. This is further complicated by the increased frequency of coronary and cerebrovascular events in CLI patients, so the
need for access in these patients is usually not a question of “if,” but rather “when.”

Endovascular therapies should be utilized first, but consideration should be given to stenting in appropriately selected patients, given recent studies demonstrating efficacy. A purpose-driven technology (biomimetic or bioabsorbable) may confer additional benefit to the endovascular patient. Finally, techniques such as the culotte technique should be considered in carefully selected patients (Figure 3).

CONCLUSION

In appropriately selected Rutherford class 3-6 patients with CFA occlusive disease, endovascular therapy represents an additional option for treatment that is safe and efficacious, contrary to prior conventional teaching. Atherectomy in addition to PTA has a technical success rate of 97% and has a significantly better primary patency rate than PTA of the CFA alone. Antirestenotic therapy also shows promise for the treatment of these challenging patients. Furthermore, provisional stenting in the CFA may have a significant impact on improving primary patency in the long term, when alternate options fail or are not available. These data would by no means indicate a change in paradigm when managing all patients with symptomatic CFA occlusive disease; CFE still remains the gold standard. However, in appropriately selected patients, percutaneous CFA interventions are safe and effective. Further development of purpose-driven technology as well as multicenter randomized studies are indicated to identify appropriate selection of patients and therapy.

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